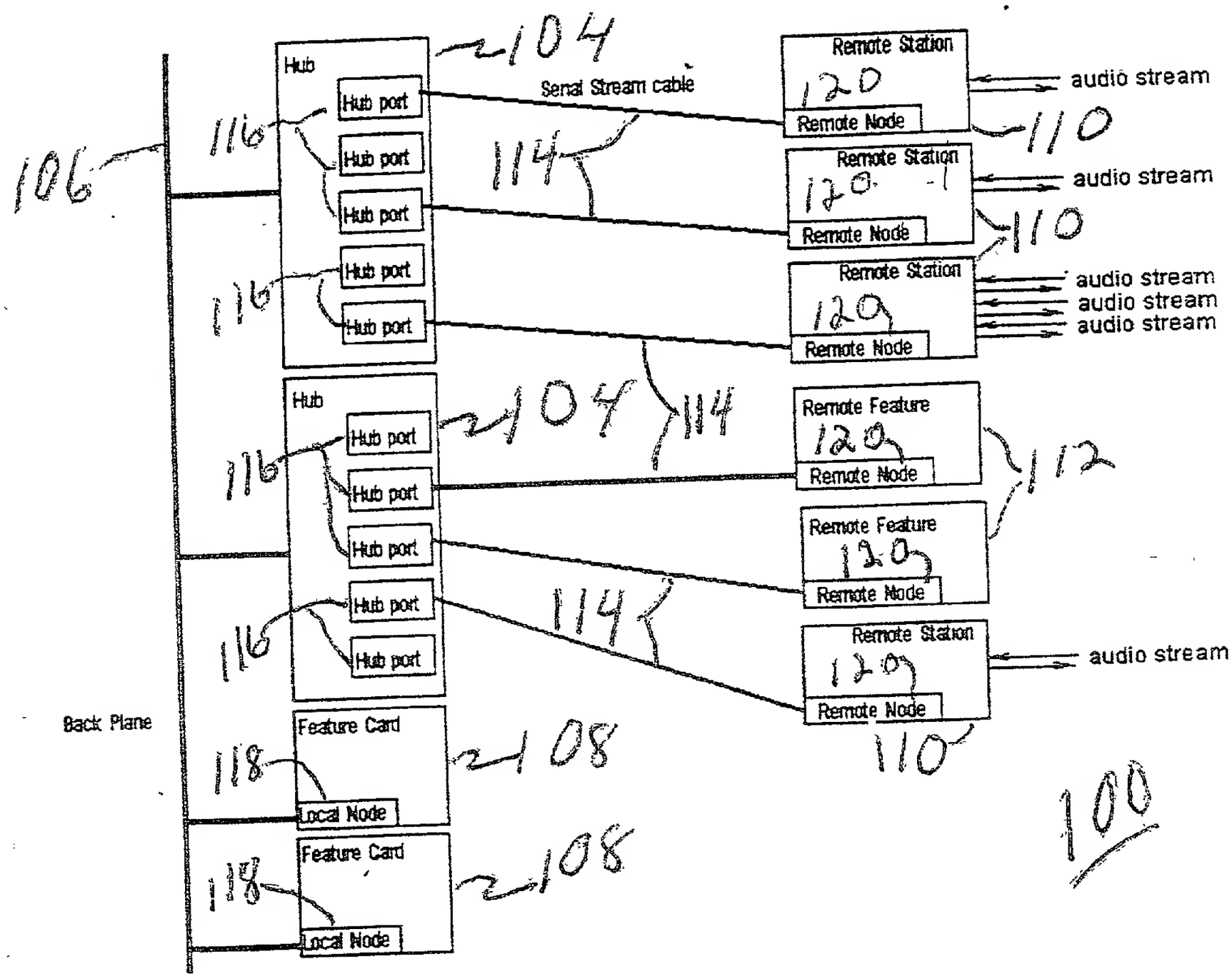
Hub
Hub port
Hub port
Hub port
Hub port
Hub port
Hub
Hub port
Hub port
Hub port
Hub port
Hub port
Back Plane
Feature Card
Local Node
Feature Card
Local Node
Serial Stream cable
Remote Station
120
Remote Node
audio stream
Remote Station
120
Remote Node
audio stream
Remote Station
120
Remote Node
audio stream
audio stream
audio stream
Remote Feature
120
Remote Node
Remote Feature
120
Remote Node
Remote Station
120
Remote Node
audio stream
106
116
116
116
116
114
114
114
104
104
104
108
108
110
110
110
112
118
118
100

FIG. 1

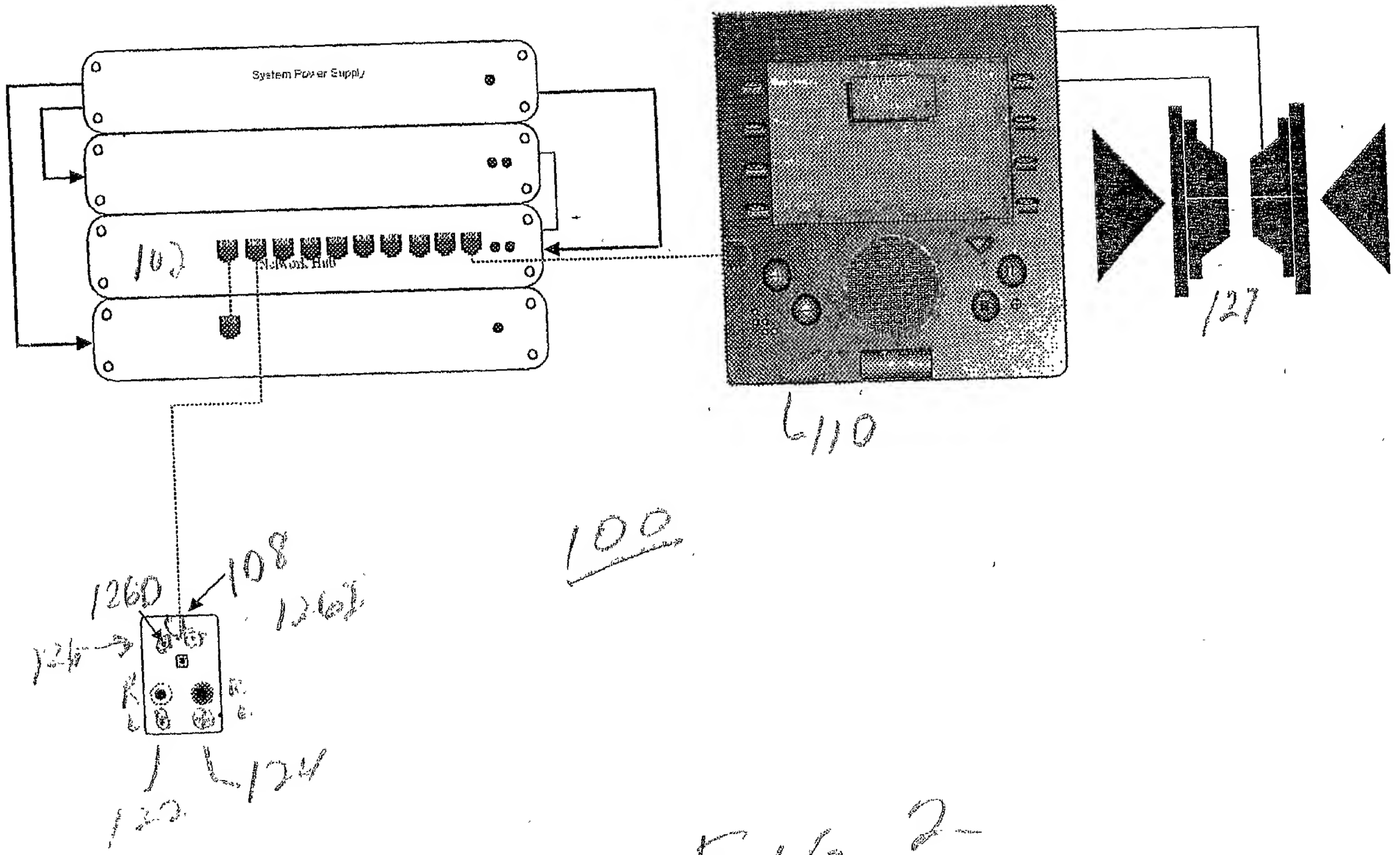
System Power Supply
Network Hub
102
110
120
124
126
126a
126b
108
100

FIG. 2

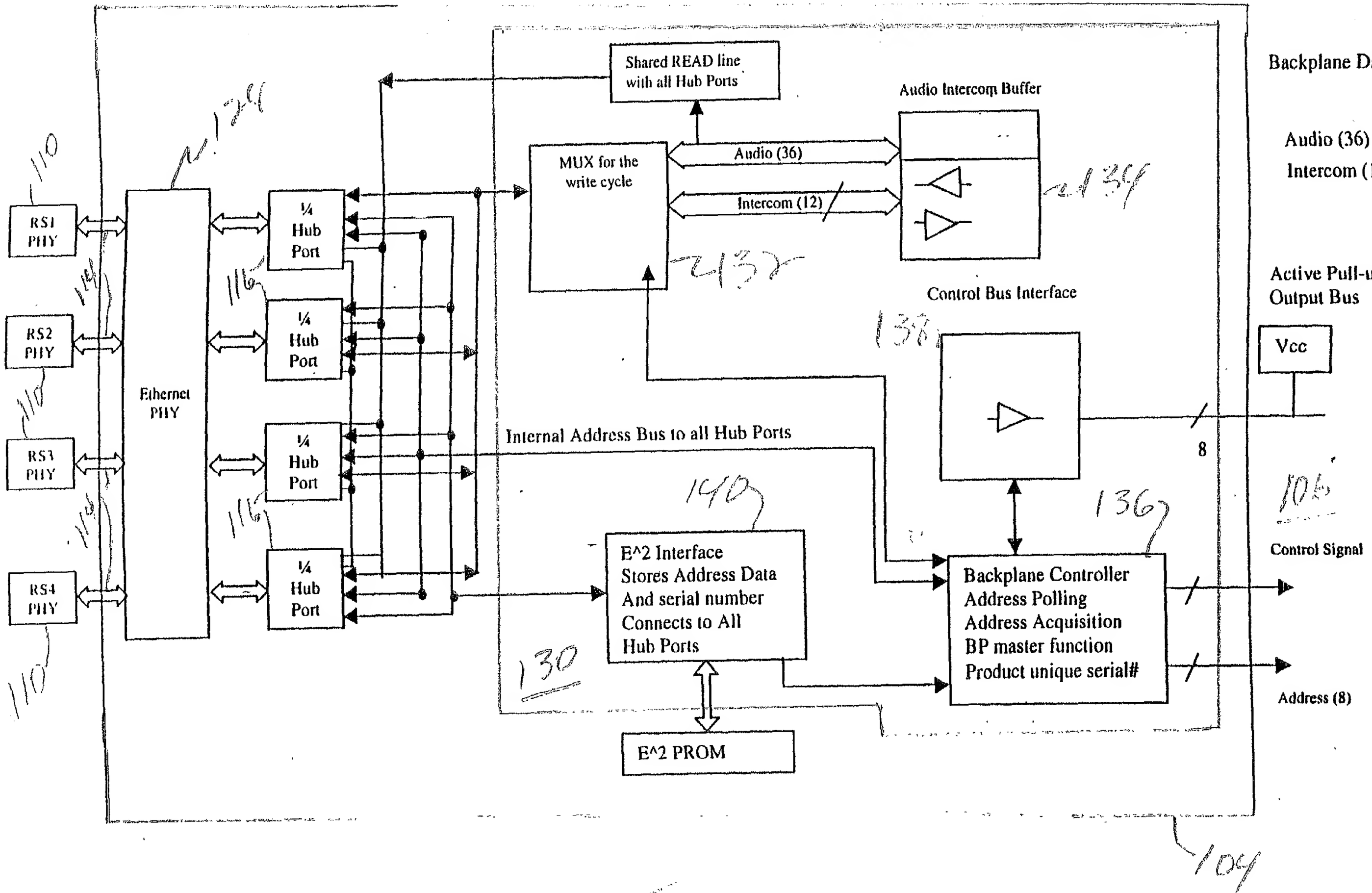
Shared READ line with all Hub Ports
Audio Intercom Buffer
MUX for the write cycle
Audio (36)
Intercom (12)
Backplane Data
Audio (36)
Intercom (12)
Active Pull-up Output Bus
Vcc
Control Bus Interface
8
RS1 PHY
RS2 PHY
RS3 PHY
RS4 PHY
Ethernet PHY
¼ Hub Port
¼ Hub Port
¼ Hub Port
¼ Hub Port
Internal Address Bus to all Hub Ports
E^2 Interface
Stores Address Data
And serial number
Connects to All
Hub Ports
E^2 PROM
Backplane Controller
Address Polling
Address Acquisition
BP master function
Product unique serial#
Control Signal
Address (8)
110
130
140
136
138
104
106

Fig. 2

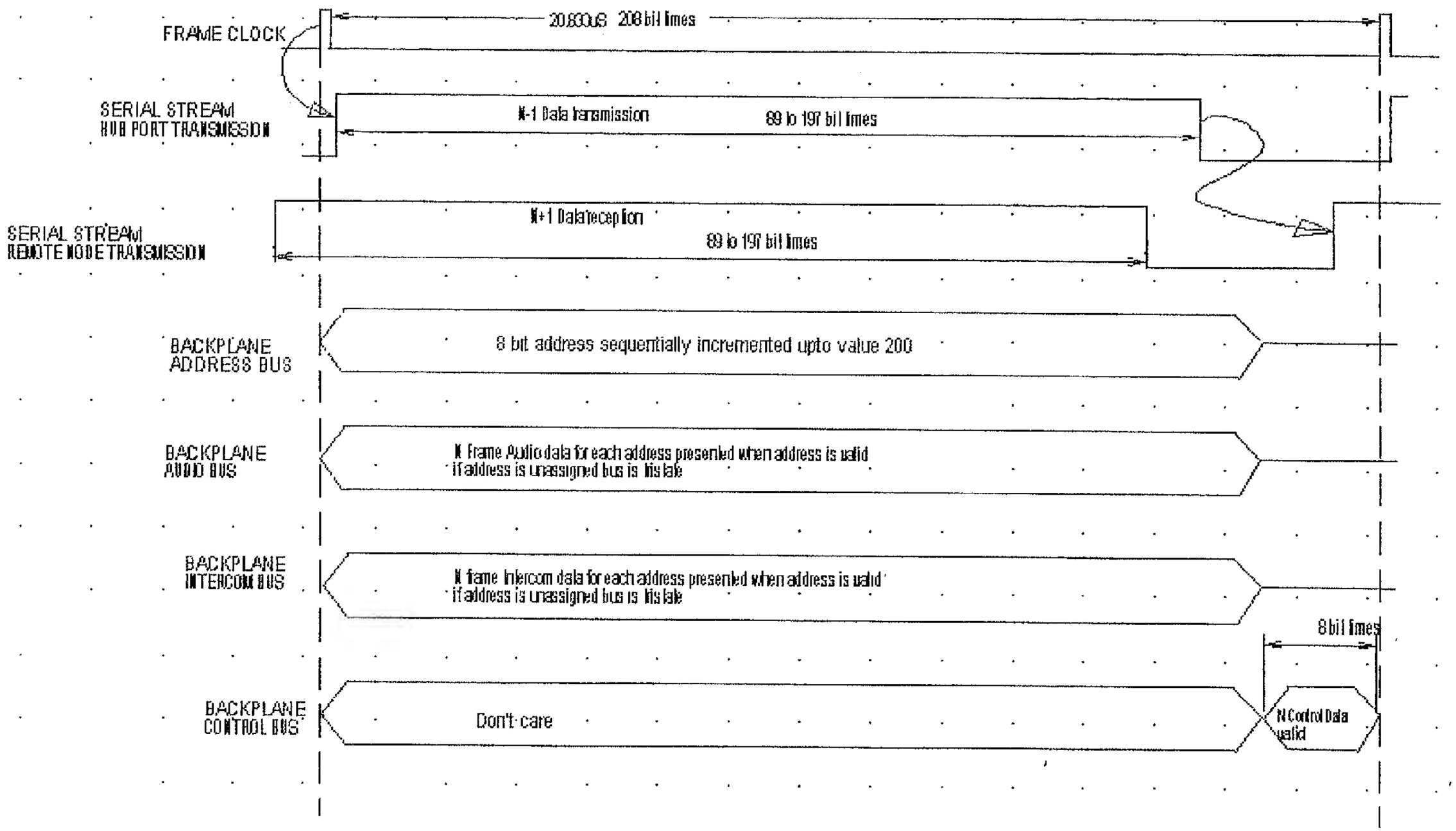

Fig. 4A

Preamble	CBS	Hub control	Data	Icom	Left audio 1	Right audio 1	Left audio 2	Right audio 2	Left audio 3	Right audio 3	Left audio 4	Right audio 4
AAAAABh	cbs	HC7...HC0	D7... D0	I11... I0	A1L17... A1L0	A1R17... A1R0	A1217... A2L0	A2R17... A2R0	A3L17... A3L0	A3R17... A3R0	A4L17 .. A4L0	A4R17.. A4R0

Fig. 4B

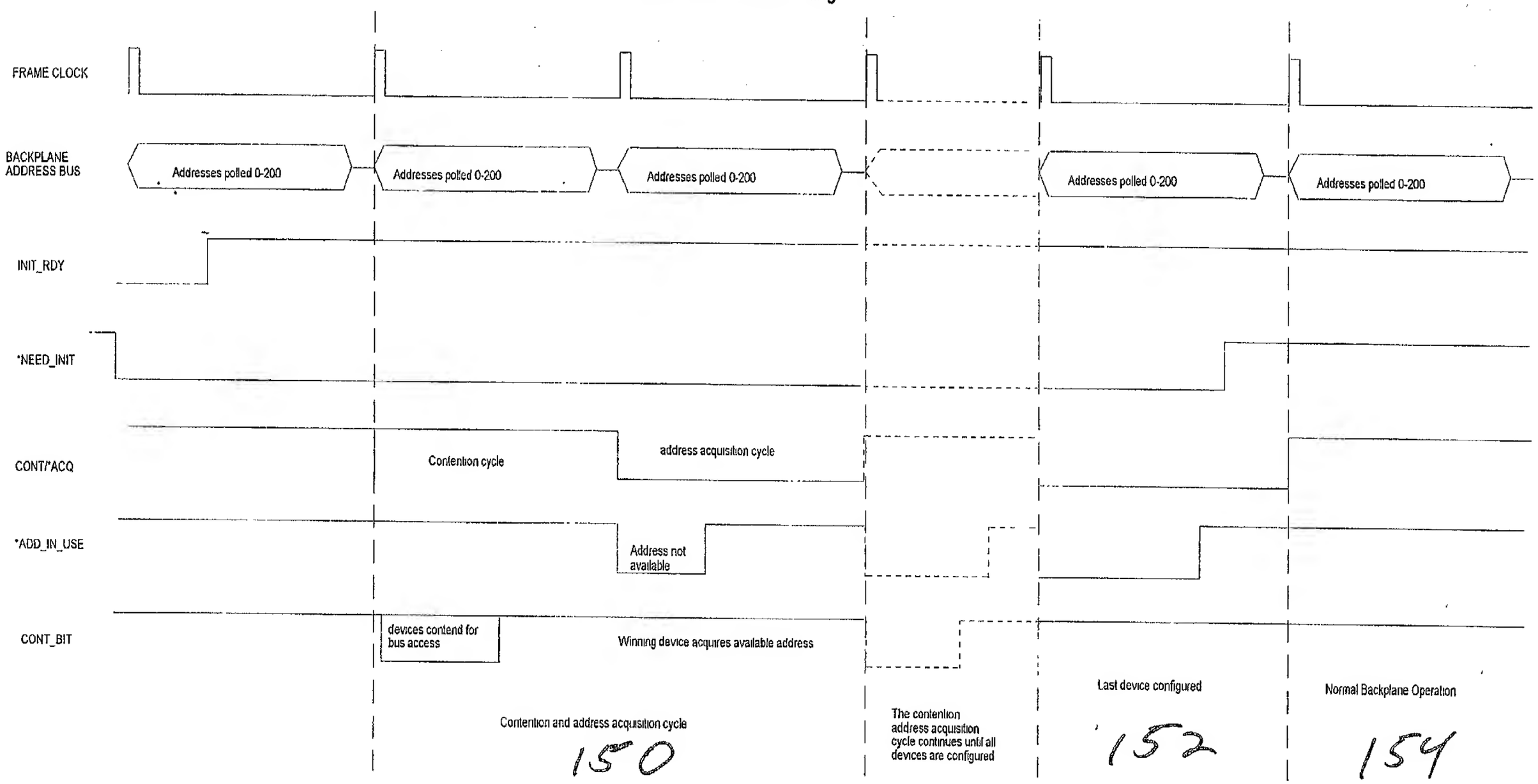
Initialization Process Timing
FRAME CLOCK
BACKPLANE ADDRESS BUS
Addresses polled 0-200
Addresses polled 0-200
Addresses polled 0-200
Addresses polled 0-200
Addresses polled 0-200
INIT_RDY
*NEED_INIT
CONT/*ACQ
Contention cycle
address acquisition cycle
*ADD_IN_USE
Address not available
CONT_BIT
devices contend for bus access
Winning device acquires available address
Contention and address acquisition cycle
150
The contention address acquisition cycle continues until all devices are configured
Last device configured
152
Normal Backplane Operation
154

Fig. 5

TOshiba 8696h860

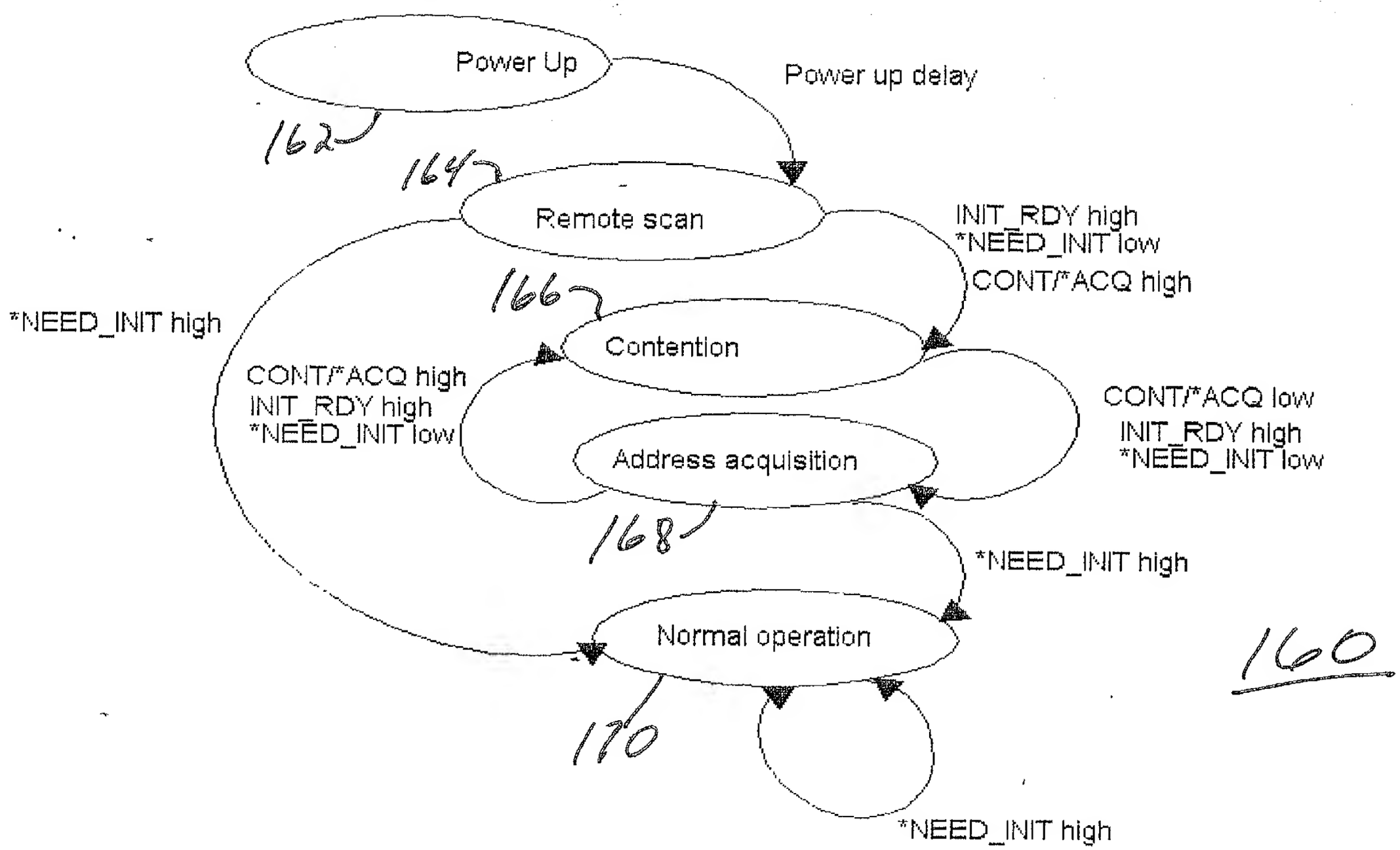

Fig. 6

T0h050" 8696h860

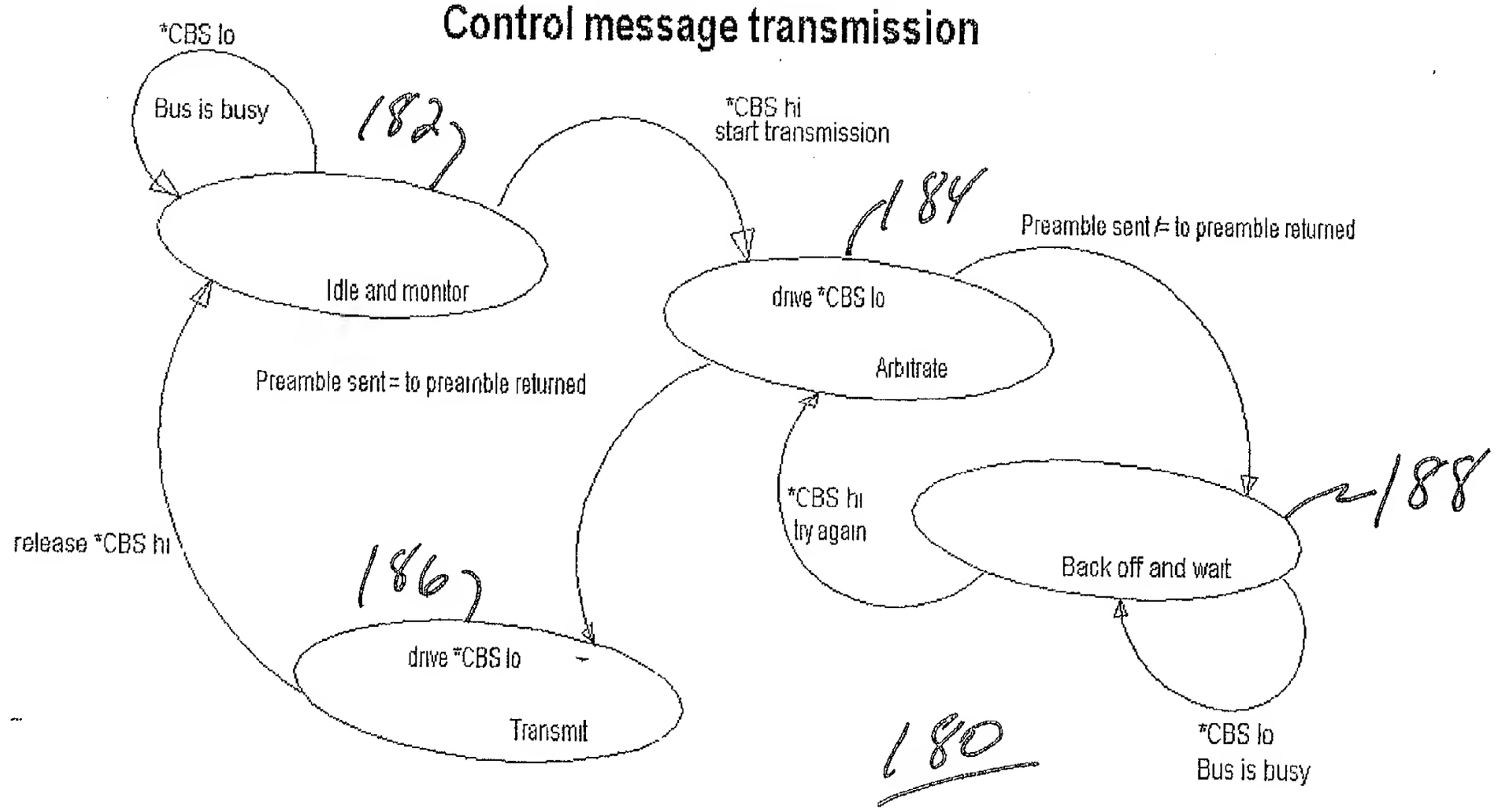

Fig. 7A

Preamble	Destination address	Source address	Number of Bytes in Payload	Payload	Checksum	
10 bytes	1 byte	1 byte	2 bytes	0-65Kbytes	2 bytes	

Fig. 7B

Docket 8696h860

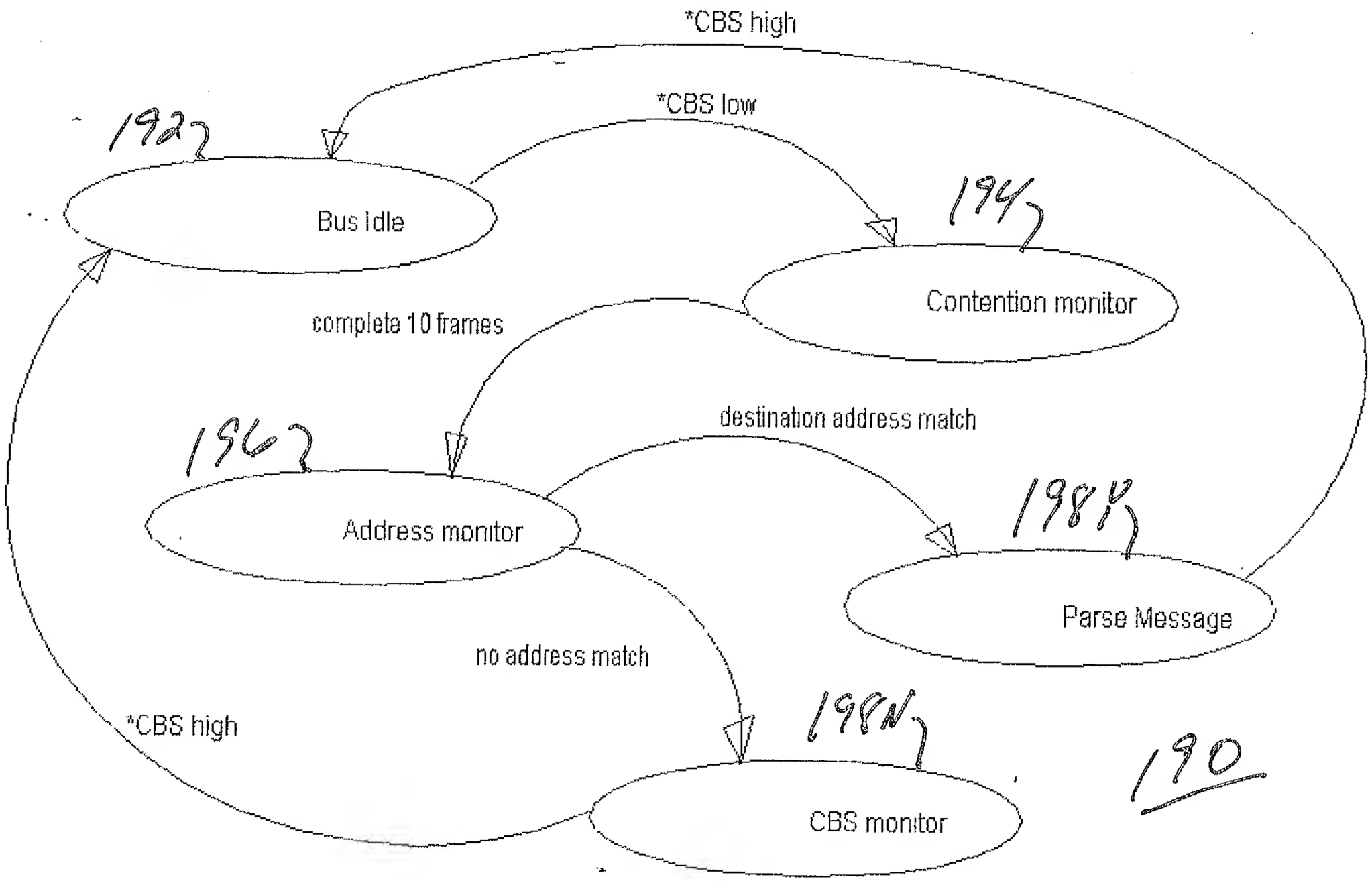

Fig. 8

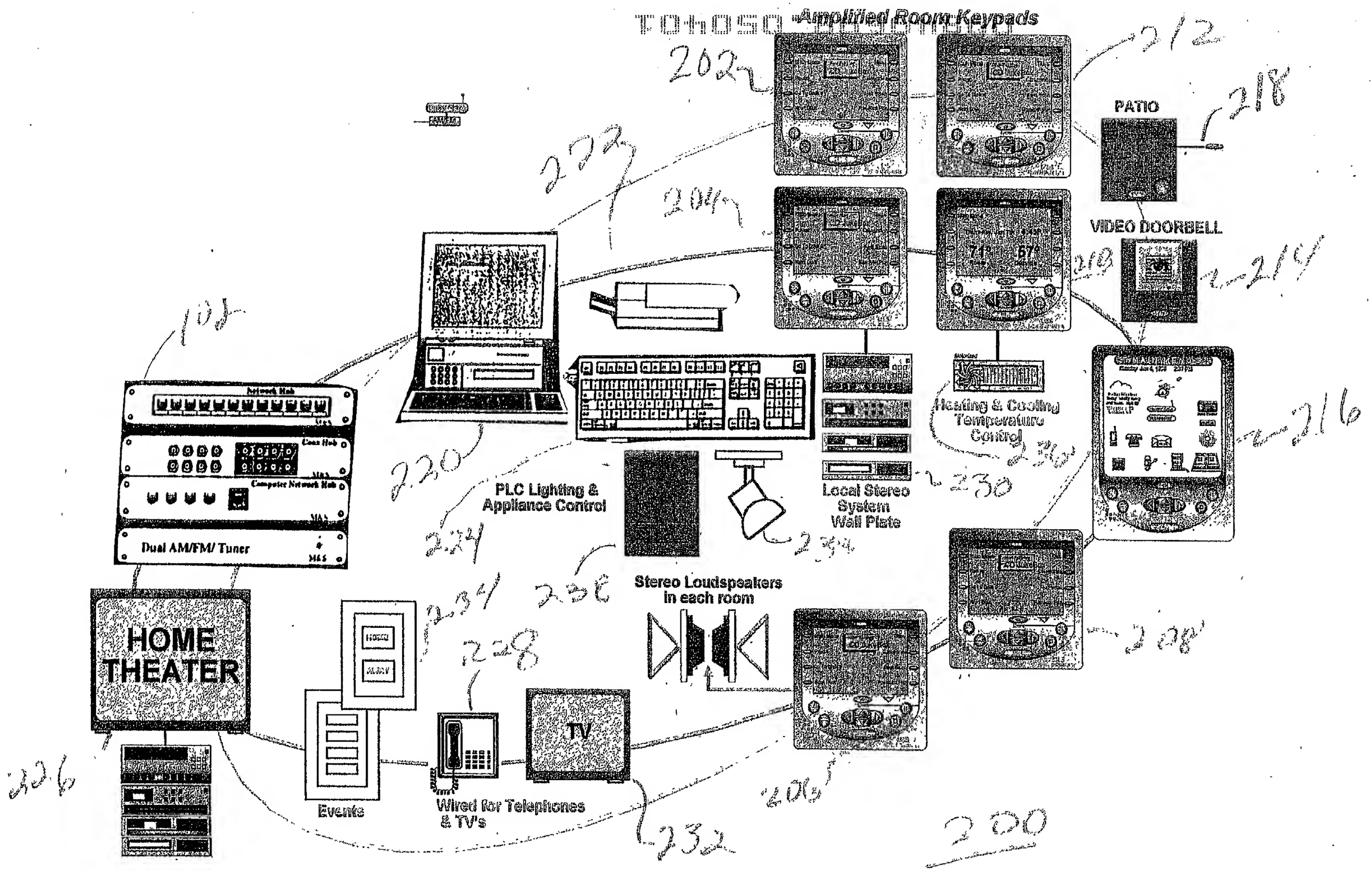
Amplified Room Keypads
PATIO
VIDEO DOORBELL
Heating & Cooling Temperature Control
PLC Lighting & Appliance Control
Local Stereo System Wall Plate
Stereo Loudspeakers in each room
Dual AM/FM/ Tuner
HOME THEATER
Events
Wired for Telephones & TV's
TV
202
212
218
222
204
214
216
220
224
230
234
236
238
208
226
232
200

FIG. 2

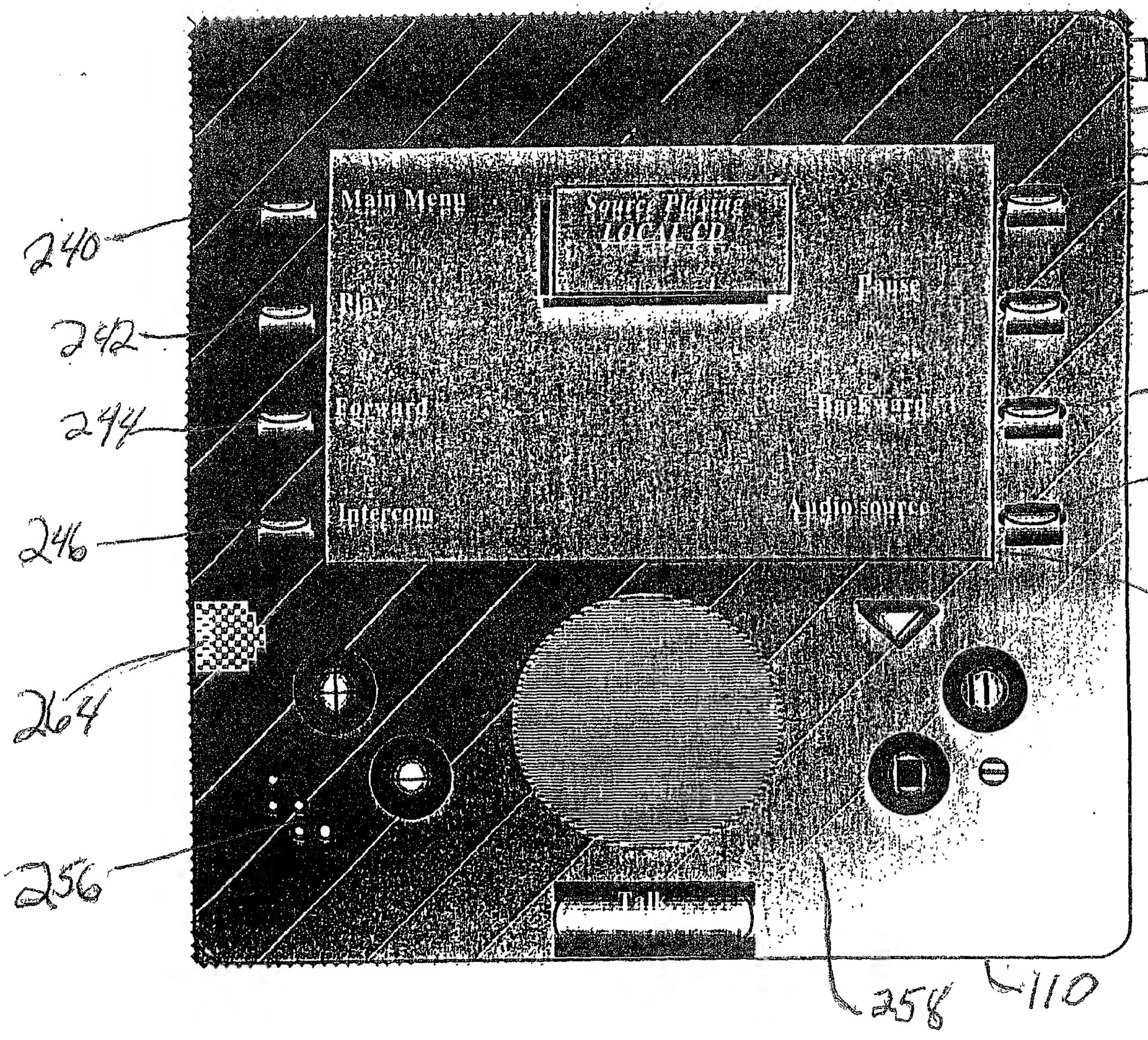
Main Menu
Source Playing
LOCAL CD
Play
Pause
Forward
Backward
Intercom
Audio source
240
242
244
246
248
250
252
254
256
258
260
262
264
266
110

FIG. 10

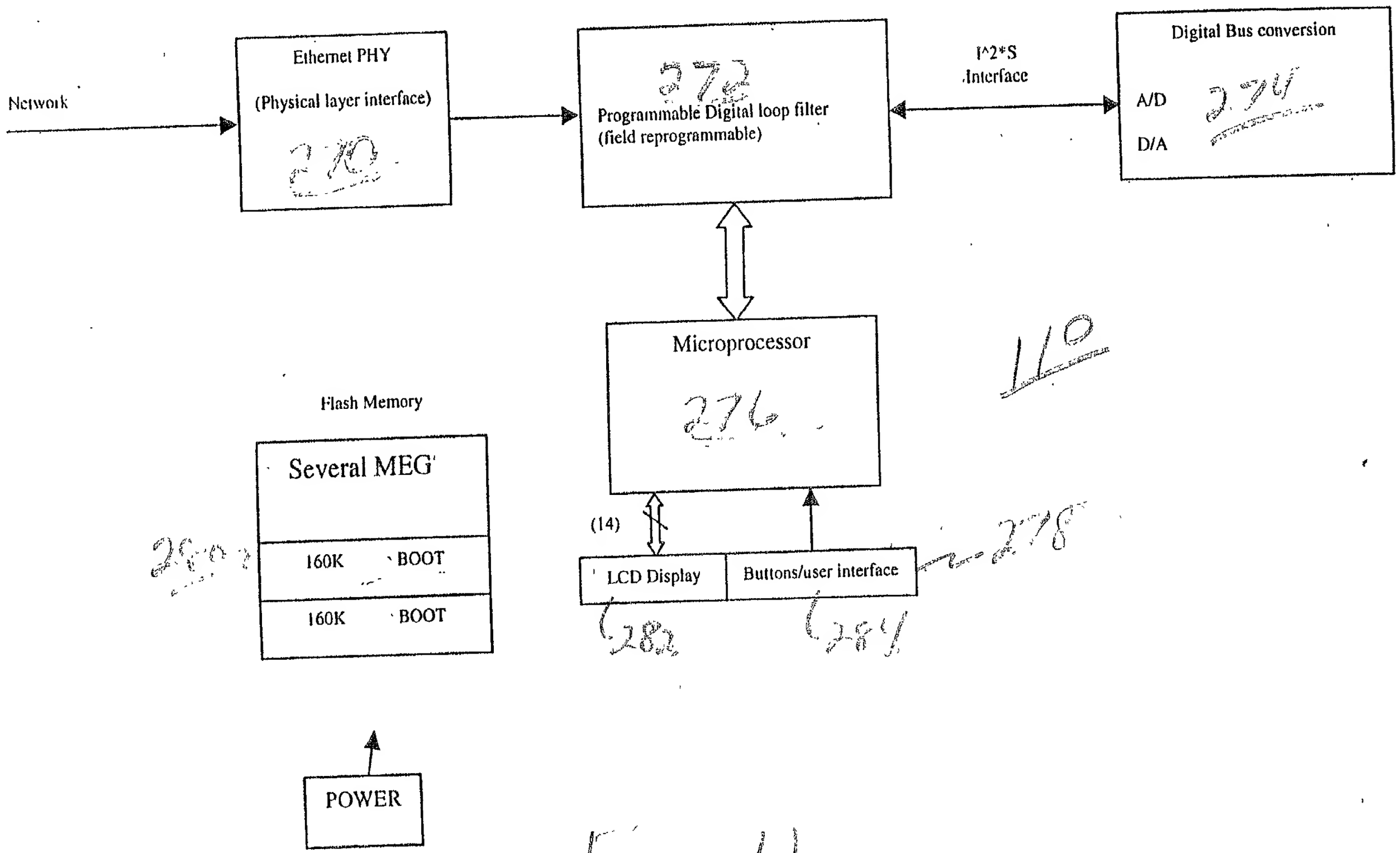
Network
Ethernet PHY
(Physical layer interface)
270
272
Programmable Digital loop filter
(field reprogrammable)
I^2*S
Interface
Digital Bus conversion
A/D
D/A
274
Microprocessor
276
110
Flash Memory
Several MEG
160K BOOT
160K BOOT
280
(14)
LCD Display
Buttons/user interface
278
282
284
POWER

Fig. 11

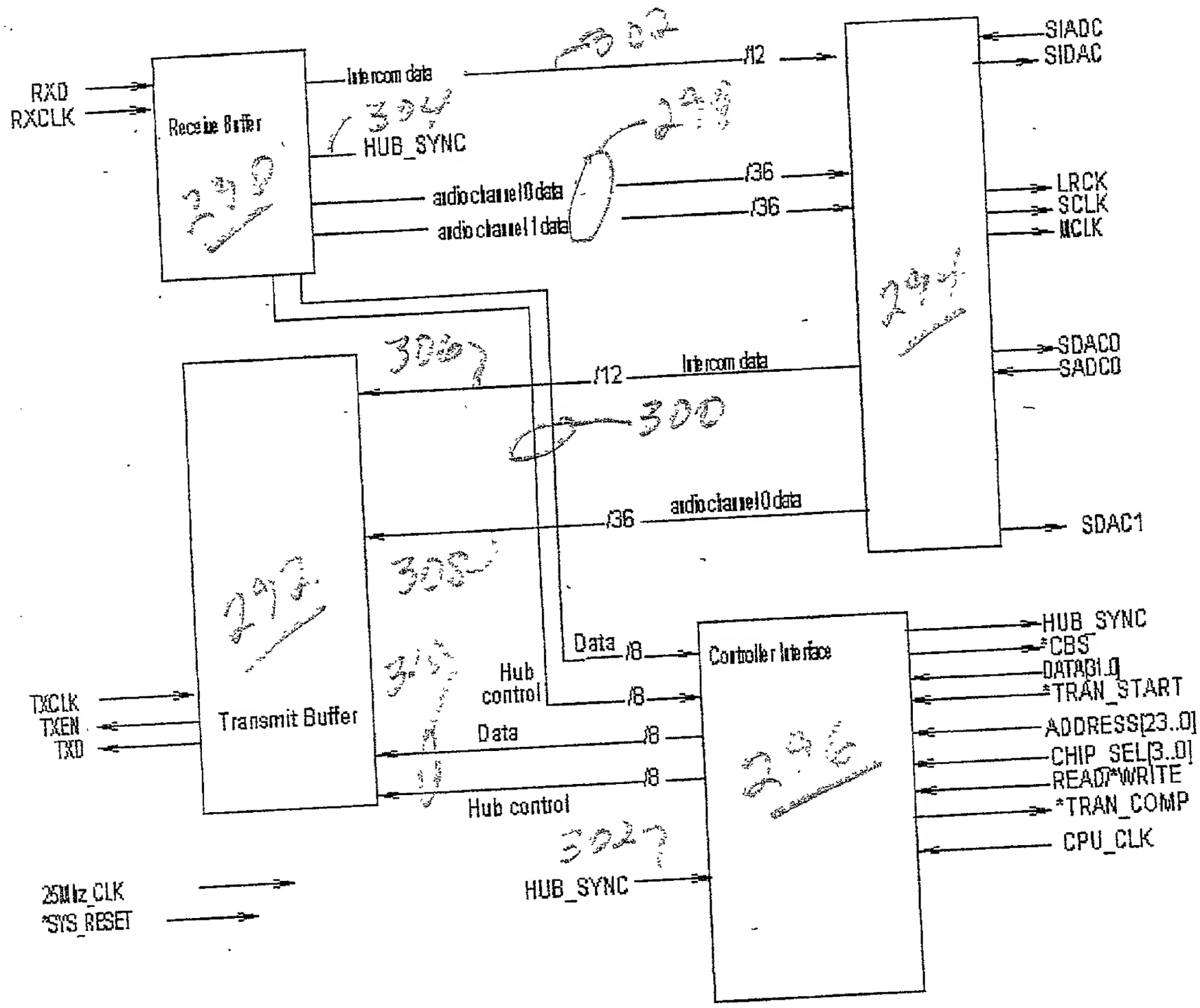
RXD
RXCLK
Receive Buffer
Intercom data
/12
HUB_SYNC
audio channel0 data
audio channel1 data
/36
/36
SIADC
SIDAC
LRCK
SCLK
MCLK
SDACO
SADCO
Intercom data
/12
audio channel0 data
/36
SDAC1
TXCLK
TXEN
TXD
Transmit Buffer
Hub control
/8
Data
/8
Data
/8
Hub control
/8
Controller Interface
HUB_SYNC
*CBS
DATA[1..0]
*TRAN_START
ADDRESS[23..0]
CHIP_SEL[3..0]
READ/*WRITE
*TRAN_COMP
CPU_CLK
25MHz_CLK
*SYS_RESET
HUB_SYNC

Fig. 12